

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

IN RE: ADAMS GOLF, INC.
SECURITIES LITIGATION

§
§ CIVIL ACTION NO. 99-371-KAJ
§ (CONSOLIDATED)
§

AFFIDAVIT OF PROFESSOR CHRISTOPHER M. JAMES

1. In this report, I outline my criticisms of the Affidavit of R. Alan Miller in Support of Plaintiffs' Opposition to the Adams Golf Defendants' Motion for Summary Judgment ("Miller's Affidavit") concerning materiality and damages in the Adams Golf Securities Litigation matter. My qualifications are outlined in my expert report dated July 14, 2006. This Affidavit is a supplement to my previous reports, declaration and deposition, and it does not contain any changes to my previous opinions.
2. I have examined the statistical tests outlined in Miller's Affidavit and find that:
 - a. The report does not employ an approach that would be consistent with scientific research in finance, accounting and/or economics and would not be publishable in a peer-reviewed journal.
 - b. The data, procedures and results are not well documented and are hence not readily replicable.
 - c. The empirical/statistical methods are highly suspect and their results are 1) flawed and 2) highly sensitive to very small changes in sample period and approach.
 - d. Finally, Miller does not perform an "Event Study" in any report or affidavit. Moreover, Miller's purported statistical analysis is inconsistent with *any* definition of market efficiency and is so unorthodox as to find no support in any financial economics academic literature.
3. In summary, I conclude that Miller does not employ generally accepted techniques in financial economics and his analyses are not based on any accepted scientific method. As such, his conclusions are suspect and unreliable.

I. Market Efficiency and Event Windows

4. Finance literature has a well-developed event study methodology for analyzing the impact of particular events on stock price. In the context of litigation, the purpose of such an analysis is to distinguish between price movements that are related to the alleged misstatements and price movements that are not related. However, Miller's event study methodology does not meet the standards that would be associated with research that is published in peer-reviewed academic finance, economics and/or accounting journals.¹ In addition, several of the critical steps in his analysis lead to spurious results.
5. First, Miller's twelve-day event window is inconsistent with market efficiency. In an efficient market, stock prices respond immediately to public information that is new and material.² The length of that window depends on the timing of the public announcement. Although a one-day window is generally the most accepted practice, if it is uncertain whether an announcement was released before or after market close, it is reasonable for a researcher to examine the stock price on the published date of the announcement and the date after (*i.e.*, a two-day event window).
6. Plaintiffs cite Mitchell and Netter³ in an attempt to provide academic support to their argument that the existence of leakage disqualifies the use of an event study using one trading day as an event window.⁴ However, it seems that Plaintiffs have taken their quote out of context, as further reading uncovers the following (emphasis added):

In most cases... the bulk of the information is released at the announcement of the event. Because the market processes information rapidly, it is conventional to expand the window only a short period after the announcement. ... [W]ith respect to securities fraud cases, there is substantial variation in the complexity of determining the length of an event window. ... [I]n many securities fraud cases the relevant information is revealed slowly over time, while during the same period investors receive other, sometimes unrelated, information about the firm(s)

¹ For discussion of accepted event study analysis in financial economics and securities litigations see Christopher M. James' Report dated July 14, 2006 (e.g., ¶¶ 16-24, 48-54).

² See Christopher M. James' Report dated July 14, 2006 (¶¶ 34 and 48-50).

³ Mitchell, Mark L. and Jeffrey M. Netter, "The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission," *The Business Lawyer* (February 1994).

⁴ Plaintiffs' Answering Brief in Response to Adams Golf Defendants' Motion for Summary Judgment dated October 9, 2006, pp. 37-38, fn. 17.

in question. In the latter case, it is relatively difficult to choose an appropriate window. *The main advice is to carefully identify the exact dates during which the information in question reached the market, and then restrict the window to a short period if possible, generally two or three days around each release of new information.*⁵

Thus, even the literature cited by Plaintiffs emphasizes the necessity of identifying the timing of the *public disclosures* in order to determine the appropriate event window, a task that Plaintiffs have failed to accomplish.

7. I have never seen a peer-reviewed paper or other research that would support the use of a twelve-day window to determine stock price reaction to the release of new information. If public information takes twelve days to be incorporated into the market price, the market for that particular stock should be deemed inefficient; thus the use of such an event window would, in fact, be rejected by peer-reviewed journals as inconsistent with the concept of market efficiency.
8. Lastly, Miller's event windows have no consistency or reliability. In his first two reports,⁶ Miller began his analysis by asserting that a two-day window may be appropriate. He then modified that to a five- to six-day event window. Finally, in this analysis, he uses a twelve-day window. Researchers in financial economics do not use such inconsistent and contradictory event windows. Market efficiency implies that the incorporation time will be substantially similar across events. Miller's analysis undermines the entire concept of market efficiency.

II. Miller's Affidavit Uses an Unorthodox and Unreliable Statistical Methods

9. The statistical models presented in Miller's Affidavit are unorthodox and unreliable. The specific dates selected by Miller to be part of his twelve-day window are arbitrary and appear to be selected to simply obtain his desired results. Miller begins his twelve-day trading window on July 10, 1998 and ends it on July 28, 1998. Miller does not identify

⁵ Mitchell, Mark L. and Jeffrey M. Netter, "The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission," *The Business Lawyer* (February 1994), p. 559.

⁶ Expert Report of R. Alan Miller dated July 12, 2006. Rebuttal Expert Report of R. Alan Miller dated July 28, 2006.

any public disclosures related to gray marketing on July 10, 1998 nor does he identify any public disclosures or sources indicating that this information had fully entered the market as of July 28, 1998. His selection of dates is inconsistent with his expert report where he states that the leakage began on July 21, 1998 through a nonpublic Costco purchase order document.⁷ Since Miller has not identified any documents or disclosures that would suggest that any information about gray marketing reached the market during this time period, his analysis is unreliable and incongruous with the financial economic literature.

10. When I examine the possible reasons why Miller could have selected this twelve-day window, one became particularly apparent: this twelve-day window represents the largest decline in Adams Golf's residual stock price. Miller appears to have "data mined" or "cherry picked" his event window. Instead of formulating a hypothesis and testing for its validity (the standard approach in financial economics and in any scientific study), Miller ran many different statistical tests to determine which model would give him the desired result (in this case, a statistically significant model).
11. Even if one considers Miller's flawed and unorthodox methodology, one cannot reach the same conclusions that he does. First, Miller's data, procedures and results are not well documented and are hence not readily replicable. Second, when I repeat a similar non-parametric analysis⁸ as used by Miller to examine event windows of slightly different lengths at the beginning of the class period, my results suggest that Miller may have used trial-and-error when choosing the length of his event window. When I calculate the sum of returns for the first 9, 10, or 11 days, I find that the model did not yield a statistically significant result. Unsurprisingly, the first event window that yields significant results is the 12-day event window. Furthermore, examining 13 and 14 days as an event window also yield significant results. (See Exhibit 17.)
12. Thus, unless Miller can point to a specific and objective reason for beginning his event period on July 10, 1998 and ending it on July 28, 1998, one must be highly suspicious of

⁷ Rebuttal Expert Report of R. Alan Miller dated July 28, 2006, ¶ 22.

⁸ Since Miller's procedures are vague and he did not provide a complete description of the data and methods, I examine two models: 1) a model using residual returns based on a regression of Adams Golf's daily stock returns against the Nasdaq's daily returns; 2) Adams Golf's actual daily returns. Both alternatives yield similar conclusions.

his choice of a twelve-day event window. Again, citing Plaintiffs' source from Mitchell and Netter: "[T]he main advice is to carefully identify the exact dates during which the information in question reached the market, and then restrict the window to a short period if possible, generally two or three days around each release of new information."⁹ Miller does not point to any information related to gray marketing on July 10, 1998¹⁰ nor does he identify any public disclosures or sources indicating that this information had fully entered the market as of July 28, 1998.

13. The second model presented in Miller's Affidavit is also flawed and unreliable. First, the model is flawed because he uses normalized price as a dependent variable, which results in serial correlation. Normalized prices are just cumulative returns, so by using this variable, Miller's regressions violate an important assumption of Ordinary Least Squares regression models—that the dependent variable should *not* be correlated.¹¹ His statistical results are thus biased and inaccurate.
14. Moreover, the second model presented in Miller's Affidavit has similar problems to those of his first model. I test his flawed model using 8-, 9-, 10-, 11-, 13-, 14- and 15-day windows and each model was statistically significant (Exhibit 18). Miller describes in his Affidavit: "The above results demonstrate that the two-slope model provides a statistically significantly better fit than the one-slope model, and provides a substantially more accurate model of the price behavior. In other words, the apparent change in the rate of decline of Adams Golf stock price is statistically significant."¹² Thus, according to Miller's flawed conclusions, any of these time periods may be considered significant. Using Miller's unreliable and flawed methodology, a two-slope model using *any chosen* time period, regardless of length, will yield better results than a one-slope model. Just as with his first model, he has made no attempt to relate the materiality of the gray market information to Adams Golf's stock price movements.

⁹ Mitchell, Mark L. and Jeffrey M. Netter, "The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission," *The Business Lawyer* (February 1994), p. 559.

¹⁰ The fact that it was the first trading day in Adams Golf's stock is insufficient; one needs to point out to specific news entering the market. In addition, Adams Golf's stock price increased on July 10, 1998; this increase implies that any information about gray marketing was either not new or immaterial to investors.

¹¹ Greene, William H., *Econometric Analysis*, 4th Edition, 2000, Ch. 6 pp. 220-221.

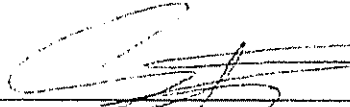
15. To test Miller's results, I use a more common and accurate analysis to verify if there is a difference between two different time periods. This method is called the Chow Test (see *Econometric Analysis* by W. Greene, 4th Edition, 2000, Ch. 7 pp. 289-291). To conduct a Chow Test, I create a binary (or dummy) variable that is set to equal 1 during the time period that is potentially different from the rest of the estimation period (and 0 otherwise). In this case, the dummy variable is equal to 1 from July 10, 1998 through July 28, 1998, and 0 for the rest of the class period. I also interact this term with the independent variable, so in this case the Nasdaq's returns are multiplied by 1 from July 10, 1998 through July 28, 1998, and 0 during the rest of the class period. Then I regress Adams Golf's stock returns on the dummy variable, the interactive variable and the Nasdaq's returns over the class period. I find that the coefficients on the dummy and interaction variables are statistically insignificant, both independently and jointly. These Chow Test results indicate that the period from July 10, 1998 through July 28, 1998 is not statistically significantly different from the rest of the class period. (See Exhibit 19.)
16. Lastly, the statistical analyses presented in Miller's Affidavit do not allow a researcher to make any conclusions as they relate to the allegations in this case. In particular, his analysis (as flawed and unreliable as it is) only shows that July 10, 1998 to July 28, 1998 may be a different time period in Adams Golf's stock compared to the rest of the class period. Since Miller fails to link these analyses with plaintiffs' specific allegations (*i.e.*, the materiality of the gray marketing allegations), it is impossible to reach a conclusion that public disclosures about the gray marketing impacted Adams Golf's stock during this time period.
17. Based on these analyses, I conclude that the statistical tests presented in Miller's Affidavit are flawed, suspect and unreliable. In addition, Miller used methods that are *not* generally accepted in the field of financial economics to examine stock price reaction to release of new information.

¹² Miller's Affidavit, Attached Statistical Analyses, p. 7.

III. Miller Does Not Perform an “Event Study” in Any Report or Affidavit

18. Finally, despite Miller’s references to event studies and regression analyses in his Affidavit, Miller did not perform a proper event study. An event study is a widely used and generally accepted analytical framework for investigating the effects of information on stock price. Over the past thirty-five years, the event study methodology has been used and refined in academic research in the fields of finance, economics and accounting.¹³ An event study provides an objective measure of whether a particular disclosure caused a significant change in the total mix of information available to the market.
19. In his Affidavit, Miller fails to show a cause-and-effect relationship between public disclosures about gray marketing and stock returns. Significantly, he makes no attempt to distinguish between allegation related and non-allegation related price declines. Indeed, his statistical tests are done in a way that does not allow him to even make such a distinction.
20. Because plaintiffs have not conducted any event study in this matter, they have no scientific basis for asserting that the observed stock price movements occurred in response to any material new information about gray marketing that entered the public domain.
21. Based on the above, I conclude that the so-called statistical analyses presented in Miller’s Affidavit and the personal observations set forth in the previous Miller Reports are unreliable, are flawed, are considered unorthodox in the financial economics community and would not satisfy the basic requirements of a peer-reviewed journal publication.


¹³ Brealey and Myers, *Principles of Corporate Finance*, 7th Ed., 2003, Chapter 13, includes an introduction to the event study analysis used in this report; see pp. 366-368. See also Brown and Warner, “Using daily stock returns: The case of event studies,” *Journal of Financial Economics* 14 (1985), pp. 3-31; John J. Binder, “On the Use of the Multivariate Regression Model in Event Studies,” *Journal of Accounting Research*, Vol. 23, No. 1, Spring 1985, pp. 370-383; and Campbell, John, Andrew W. Lo and A. Craig MacKinlay, *The Econometrics of Financial Markets*, Princeton University Press, 1997, Chapter 4. Also see a discussion in my prior report dated July 14, 2006 ¶¶ 16-24, 48-54.



Christopher M. James

10/30/06

Date

Cynthia Leon Frenchman

10 30 06
personally known to me

**UNITED STATES DISTRICT COURT
DISTRICT OF DELAWARE**

CERTIFICATE OF SERVICE

I hereby certify that on October 30, 2006, I have caused the foregoing to be served by Hand Delivery which has also been filed with the Clerk of Court using CM/ECF which will send notification of such filing(s) to the following:

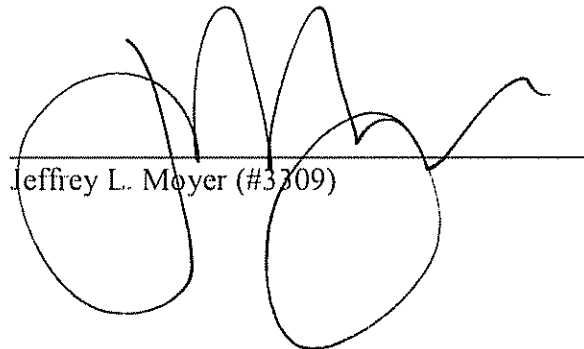
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I hereby certify that on October 30, 2006, I have sent by electronic mail the foregoing document(s) to the following non-registered participants:

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